



STATEMENT OF BASIS
FORMER PAVING AND GROUNDS FACILITY,
FACILITY 958
SOLID WASTE MANAGEMENT UNIT NO. 45
45TH SPACE WING
PATRICK AIR FORCE BASE
BREVARD COUNTY, FLORIDA



PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed in order to inform the public and give the public an opportunity to comment on a proposed remedy to clean up contamination at the Former Paving and Grounds Facility, Facility 958. A 45th Space Wing (45th SW) installation restoration partnering (IRP) team consisting of United States Air Force (USAF), United States Environmental Protection Agency (USEPA), the State of Florida Department of Environmental Protection (FDEP), the U. S. Army Corps of Engineers, and various environmental consultants have determined that the proposed remedy is cost effective and protective of human health and the environment.

Brief Site Description

Facility 958 is located on South Patrick Drive between the runways and Highway A1A, on the southern portion of PAFB (See Figure 1). The facility was built as for paving and grounds functions in 1955. It was used for the storage and distribution of pesticides and herbicides.

However, prior to implementation of the proposed remedy, the 45th SW IRP team would like to give an opportunity for the public to comment on the proposed remedy. At any time during the public comment period, the public may comment as described in the "How Do You Participate" section of the SB. Upon closure of the public comment period, the 45th SW IRP team will evaluate all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy prior to implementation.

WHY IS CLEANUP NEEDED?

The results of the Resource Conservation and

Recovery Act (RCRA) Facility Investigation (RFI) indicated that a polychlorinated biphenyl (PCB), several volatile organic compounds (VOCs), various pesticides, and two metals (listed in Table 1) were present in the ground-water at levels that could be potentially harmful to human health.

HOW DO YOU PARTICIPATE?

The 45th SW IRP team solicits public review and comment on this SB prior to implementation of the proposed remedy as a final remedy. The final remedy for Facility 958 will eventually be incorporated into the Hazardous and Solid Waste Amendments (HSWA) Permit for Patrick Air Force Base (PAFB).

The public comment period for this SB and the proposed remedy will begin on the date that a notice of the SB's availability is published in a major local newspaper of general circulation. The public comment period will end 45 days thereafter. If

The Clean-up Remedy

The proposed clean-up remedy for Facility 958 includes (but is not limited to) the following components:

- Natural attenuation of groundwater to remove contaminants through natural processes.
- Implementation of land use controls designed to prevent exposure to site contaminants. These include:
 - Prohibition of residential development
 - Periodic monitoring to document water quality and contaminant levels
 - Posting warning signs on-site

A complete list of land use controls and other protective measures are found in the Facility 958 Land Use Control Implementation Plan (LUCIP).

requested during the comment period, the 45th SW IRP team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or provide comments, contact the following person in writing within the 45-day comment period:

Mr. Jorge Caspary
FDEP-Bureau of Waste Cleanup
2600 Blair Stone Road, MS-4535
Tallahassee, FL 32399-2400
E-mail: Jorge.Caspary@dep.state.fl.us
Telephone: (850) 921-9986

The HSWA Permit, the SB, and the associated Administrative Record, including the RFI Report, will be available to the public for viewing and copying at:

Environmental Management, CEV/ESC
Facility 1638, Samuel Phillips Parkway
Cape Canaveral Air Force Station, FL
For public access call (321) 853-0965

This information can also be found on-line at
http://www.mission-support.org/45SW_IRP_EA

The HSWA Permit, the SB, and Facility 958 Report summaries will be available for viewing and copying at:

Central Brevard Library
308 Forrest Avenue
Cocoa, FL, 32922

To request further information, you may contact one of the following people:

Ms. Teresa Green
Environmental Restoration Element Chief
45 CES/CEVR
1224 Jupiter Street
Patrick Air Force Base, FL 32925-3343
E-mail: teresa.green@patrick.af.mil
Telephone: (321) 853-0965

Mr. Jorge Caspary
See previous contact information

Mr. Timothy R. Woolheater, P. E.
EPA Federal Facilities Branch
Waste Management Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street
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Telephone: (404) 562-8510

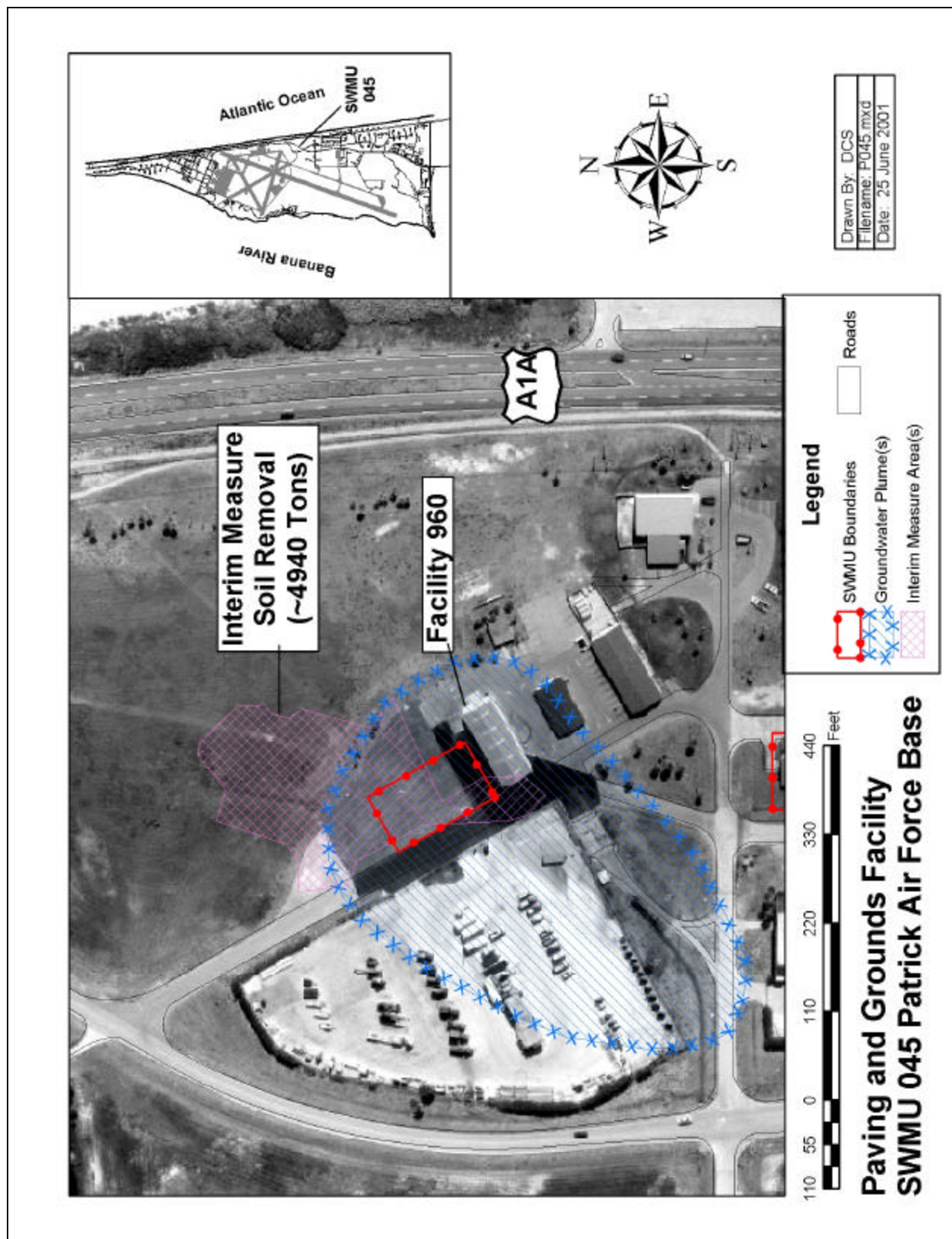
FACILITY DESCRIPTION

USAF established the 45th SW as the primary organization for the Department of Defense aerospace force programs. These operations have involved the use of toxic and hazardous materials. Under RCRA and the HSWA Permit (PAFB Permit No. FL257002404) issued by the USEPA, the 45th SW was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Unit (SWMU) No. 45, Paving and Grounds, Facility 958.

SITE DESCRIPTION AND HISTORY

Facility 958 is located east of South Patrick Drive near the southern portion of PAFB between the runways and Highway A1A (See Figure 1). The Atlantic Ocean is approximately 700 feet east of Facility 958, and the Banana River is approximately 3,000 feet west of Facility 958.

Facility 958 was built in 1945 for use as a Paving and Grounds Facility, which historically was part of the base pesticide and herbicide program. In a 1957 drawing, the structure was listed as a Mosquito Control Lab. Records indicate that two tanks of DDT were installed at the facility in 1951. Other pesticides may have been used at the facility, as well. Beginning in 1948, the facility was known as the Roads and Grounds Office and Insect Shop. Up until 1979, vehicles that distributed herbicides and pesticides were maintained at Facility 958.



In accordance with RCRA Section 7004(b), this Statement of Basis summarizes the proposed remedy for PAFB Facility 958. For detailed information, consult the Facility 958 RFI Report which is available for review at the 45th SW Environmental Management Office (See "How Do You Participate") or on-line at http://www.mission-support.org/45SW_IRP_EA.

After distributing pesticides, the vehicles were washed out on a concrete pad just east of the building. The water was reportedly allowed to drain to the east into a grassy area.

Until 1999, the building was used by a Base grounds maintenance contractor as both an office and a maintenance shop for small engines. An interviewee indicated that no pesticide activity occurred at the facility after 1979. Facility 958 was demolished in 2000 as part of the soil interim measure.

The USAF conducted the following investigations:

- 1993-1995: A Preliminary Assessment including records search, site reconnaissance, and interviews with knowledgeable personnel identified areas of concerns which warranted further investigation. Confirmation Sampling (CS) was recommended to collect and analyze the site's environmental media (soil and groundwater) to evaluate the presence or absence of contamination.
- 1997: The CS report concluded that the presence of constituents in soil and groundwater might pose a risk to human health and the environment. The CS recommended that an RFI be conducted to assess the nature and extent of the contamination present at the site, and perform risk assessments to determine if the contamination is detrimental to human or ecological health.
- 1997-2000: An RFI was performed, detailing the sampling and analysis of site soil and groundwater. These results were used to determine human health and ecological risks. A Preliminary Risk Evaluation (PRE) for human health performed in 1999 indicated that potential risk existed from site groundwater and soil. However, subsequent to this initial assessment, an Interim Measure (IM) was performed to remove all soils that exceeded residential screening criteria. The

Ecological Risk Assessment (ERA) indicated that no unacceptable ecological risk is present at the site.

- 2000: An IM was performed to remove soil contamination found in and around the site. The clean-up action resulted in the removal of approximately 3,529 cubic yards (4,940 tons) of soil contaminated with pesticides and polynuclear aromatic hydrocarbons (PAHs).
- 2000: A Corrective Measures Study (CMS) was performed in order to select the appropriate remedy for the site. It was determined that monitoring of groundwater would be needed and that land use controls would be implemented to ensure that human receptors would be protected from unacceptable exposure to site groundwater and surface water.

SUMMARY OF SITE RISK

As part of the RFI activities, a PRE and an ERA were conducted to estimate the health and environmental risks associated with the site-specific contamination. The risk assessments were performed in accordance with risk management decision processes established by the USEPA, FDEP, and the USAF at the time the RFI was initiated.

The Chemicals of Potential Concern (COPCs) identified for human health during the RFI were:

- Groundwater: antimony, aroclor 1260, arsenic, benzene, chlorobenzene, 1,1-dichloroethene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, alpha-BHC, beta-BHC, gamma-BHC (lindane), dieldrin, heptachlor epoxide, p,p'-DDD, p,p'-DDE, p,p'-DDT

A soil removal was performed based on initial RFI data. This removal targeted all areas where existing soils posed a potential unacceptable risk to current and future users (workers and residents). Based on the results of that removal,

no unacceptable human health risk is associated with remaining site soils.

Groundwater is the only remaining medium that demonstrates a potential unacceptable human health risk. The one in one million (1/1,000,000) cancer threshold was exceeded for the hypothetical future adult and child residents. The primary contributors to that groundwater cancer risk included arsenic, alpha-BHC, gamma-BHC, chlorobenzene, 1,4-dichlorobenzene, dieldrin, and p,p'-DDD.

Through the risk management decision process, it was determined that aroclor 1260, arsenic, and 1,1-dichloroethene do not pose an unacceptable risk. Considerations contributing to this decision included: maximum detected values were less than the Maximum Contaminant Level established by USEPA, detected values did not exceed PAFB naturally-occurring background concentrations (arsenic), and parameters were detected in a limited number of samples and were not primary contributors to risk (1,1-dichloroethene and aroclor 1260).

The ERA was conducted to evaluate the possibility that land organisms (eco-receptors) may be at risk from site-related contaminants. The ERA was based on laboratory analyses of soil samples. Groundwater was not evaluated in the ERA, as there is no identified exposure pathway.

The ERA concluded that potential risk from the exposure to and/or ingestion of soil by eco-receptors is marginal. Several factors mitigate the potential concern. These could include routine facility operation and maintenance activities, less than optimal habitat found within facility boundaries, and the extent of the eco-receptor's normal foraging area.

WHAT ARE THE CLEANUP OBJECTIVES AND LEVELS?

The remedial action objective (RAO) is to protect humans from exposure to shallow groundwater and prevent consumption of

groundwater from the shallow aquifer (where contaminant concentrations are higher than regulatory standards).

Table 1 lists the COPCs present at Facility 958. The first column lists the chemical name, the second column lists the maximum concentration detected in the impacted medium at Facility 958 during the RFI, and the last column presents the clean-up level to be achieved at the site.

Please note that through the risk management decision process, several contaminants originally designated as COPCs were determined not to pose an unacceptable risk (See "Summary of Site Risk") and are therefore not addressed by the remedial action.

TABLE 1—CLEANUP GOALS

Site-Related Chemicals of Concern (COPCs)	Maximum Detected Concentration (ug/L)	Site-Specific Clean-up Level ¹ (ug/L)
GROUNDWATER		
Antimony	5.3	5
Benzene	12	1
Chlorobenzene	190	100
1,3-dichlorobenzene	3,000	10
1,4-dichlorobenzene	2,100	75
Alpha-BHC	3.3	0.006
Beta-BHC	1.34	0.02
Gamma-BHC	3.7	0.2
Dieldrin	0.54	0.005
Heptachlor epoxide	0.07	0.2
p,p'-DDD	20	0.1
p,p'-DDE	5.8	0.1
p,p'-DDT	1.6	0.1

¹ Clean-up level is represents the most stringent value among USEPA and FDEP criteria at the time of the final investigation.

CLEANUP ALTERNATIVES FOR FACILITY 958

Clean-up alternatives are different combinations of plans to restrict site use and to contain, remove, and/or treat contamination in order to protect public health and the environment. Only two alternatives were considered because of low levels of contamination present at the Facility 958. The clean-up alternatives considered for the Facility 958 are summarized below.

No Action: Evaluation of the No-Action alternative is used as a basis for comparison with other alternatives. Under this alternative, no remedial action would be taken to reduce human health risks or restrict site use. No monitoring of COPC concentrations in the groundwater would be performed. It was determined this alternative would not attain the RAO.

Land Use Controls with Long Term

Monitoring: Under this alternative, material processes such as biological degradation, dispersion, advection, and adsorption would reduce COPC concentrations to cleanup levels over time. Groundwater would be regularly sampled and analyzed to monitor and document the decrease in contaminant concentrations. Data collected during the RFI and other Basewide assessments indicate that biodegradation will likely reduce contaminant concentrations below cleanup levels within 30 years. Additionally, the 45th SW would implement site-specific land use controls to protect against exposure to contaminated shallow groundwater and to prevent consumption of shallow groundwater. In the long term, this remedy alternative will meet the RAO and will also allow re-evaluation to determine if the remedy is working and provide an opportunity for change if necessary.

The 45th SW, USEPA, and FDEP have entered into a Memorandum of Agreement (MOA), which outlines how land use controls will be

managed at the 45th SW. The MOA requires periodic inspections, condition certification, construction project coordination, and agency notification. Site-specific details can be found in the Facility 958 Land Use Control Implementation Plan (LUCIP).

EVALUATION OF REMEDY ALTERNATIVES

Each cleanup alternative was evaluated to determine how each potential remedy would comply with the four general standards for corrective measures. The four general standards for corrective measures are:

- Overall protection of human health and the environment;
- Attain media cleanup standards;
- Control the sources of releases; and
- Comply with standards for management of wastes

The second alternative (Land Use Controls and Natural Attenuation with LTM) meets each of the above criteria, while the no action alternative remedy would not meet them.

LAND USE CONTROLS AGREEMENT

By separate MOA dated 23 December 1999, with USEPA and FDEP, PAFB, on behalf of the Department of the Air Force, agreed to implement base-wide, certain periodic site inspection, condition certification, and agency notification procedures designed to ensure the maintenance by installation personnel of any site-specific land use controls deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the USAF's substantial good-faith compliance with the procedures called for therein, reasonable assurances would be provided to the USEPA and FDEP as to the permanency of those remedies which included the use specific land use controls.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by the USAF, USEPA, and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent on PAFB's substantial good-faith compliance with the specific land use control maintenance commitments reflected therein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

WHAT IMPACTS WOULD THE CLEANUP HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the surrounding communities because groundwater underlying the site is not used for potable water. The natural attenuation and LTM alternative includes administrative actions to limit the use of groundwater until cleanup levels have been reached and to ensure that construction activities do not cause contaminant re-distribution. Additionally, residential use of the Facility 958 is not occurring nor is it expected in the near future. As long as the PAFB remain an active military installation and continues to support the Space Program, Facility 958 is expected to continue operating in an industrial capacity.

WHY DOES THE 45th SW IRP TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because the naturally occurring attenuation processes observed at the site are sufficient for the removal of the low contaminant concentrations remaining in groundwater at Facility 958. The LTM program will be used to assess and document reduction in contaminant concentrations to the cleanup goals. The land

use controls will also prevent exposure to contaminants prior to the cleanup levels being achieved. The proposed remedy meets the four general standards for corrective measures.

NEXT STEPS

The 45th SW IRP team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy into the PAFB HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then the LTM program and the land use controls will be initiated. The LUCIP will be developed and incorporated into the MOA.



LAND USE CONTROL IMPLEMENTATION PLAN

FORMER PAVING AND GROUNDS FACILITY, FACILITY 958 SOLID WASTE MANAGEMENT UNIT 45 (SWMU NO. 45) 45TH SPACE WING PATRICK AIR FORCE BASE BREVARD COUNTY, FLORIDA

Facility Description

Facility 958, Solid Waste Management Unit 45 (SWMU No. 45) was built in 1945 for use as a Paving and Grounds Facility, which historically was part of the Base pesticide and herbicide program. Facility 958 recently served as the office and mechanics shop for a grounds maintenance contractor and consisted of a one-story concrete block structure. The area surrounding the facility was completely paved with asphalt and concrete. Runoff from pavement on the eastern portion of the facility collected at a low point in the paved area and drained east to a grassy area where it percolated into the soil. Building 958 was recently demolished as part of the Interim Measure conducted as part of this investigation. The building will not be replaced.

Location

(Reference Site Map on last page of this document)

Site Plan Coordinate	Northing	Easting
North	1417869.78	784232.33
West	1417830.01	784166.05
South	1417709.30	784233.03
East	1417749.77	784300.72

Objective

Implementation of site-specific land use controls to protect against exposure to contaminated shallow groundwater and to prevent consumption of the shallow groundwater.

Land Use Controls (LUCs) to be Implemented:

Administrative:

- The property will be prohibited from residential or other non-industrial development without prior written notification to the Florida Department of Environmental Protection (FDEP) and the United States Environmental Protection Agency (USEPA) concerning the SWMU land use change. Dependent on site conditions and the nature and intensity of the proposed land use change, additional site investigations and

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assessments could be required for the United States Air Force (USAF). Based on these analyses, additional remedial measures may be required prior to land use change.

- Perform and document baseline LUC audit upon finalization of the Statement of Basis.
- Perform and document quarterly LUC compliance inspections in accordance with 45th SW LUC Operations Manual.
- Perform, document, and report an annual audit on LUC implementation, maintenance, and compliance in accordance with the 45th SW LUC Operations Manual and the current PAFB Corrective Action Management Plan (CAMP).
- The property Land Use Control Implementation Plan (LUCIP) shall remain in effect until:
 - a) Changes to applicable Federal and State risk-based clean-up standards occur which indicate site contaminants no longer pose potential residential risk; or
 - b) Reduction in site contaminant concentrations to below Federal and State residential risk-based clean-up standards occurs.
- In the event of property realignment, transfer, or re-use for non-industrial or non-commercial purposes, assessment and remediation may be necessary to ensure that impacts to ecological receptors are not increased or to mitigate potential ecological impacts where residual contamination exists.

Groundwater:

- The consumptive use of the site's surficial aquifer groundwater will be prohibited.
- Incidental consumption and dermal exposure to groundwater from the surficial aquifer will be prevented. This will be addressed by the project proponent's health and safety advisor.
- Groundwater will not be contacted, pumped, or discharged during property development, maintenance, or construction, without:
 - a) USAF review, coordination, and approval of the proposed construction/development plans via AF Form 103 (Base Civil Engineer Work Clearance Request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
 - b) Ensuring proper engineering controls are in-place so that unauthorized release or disposal of the affected media (groundwater) does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to any pumping or discharge of groundwater; and
 - c) Use of proper personal protection equipment by Site workers, as determined by the project proponent's occupational health and safety advisor.
- USAF will institute a long term monitoring (LTM) program of groundwater in the surficial aquifer in accordance with an approved LTM work plan and the CAMP as

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part of the PAFB HSWA Permit. Reports will be submitted annually, along with revised work plan recommendations, until such a time as the relevant regulatory agencies agree that contaminant concentrations in groundwater no longer warrant long term monitoring.

- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the PAFB HSWA permit.

Statement of Basis:

The Statement of Basis (SB) is currently being reviewed. It is anticipated that the SB will be accepted/incorporated into the HSWA Permit, scheduled for issuance early in 2002.

Additional Information:

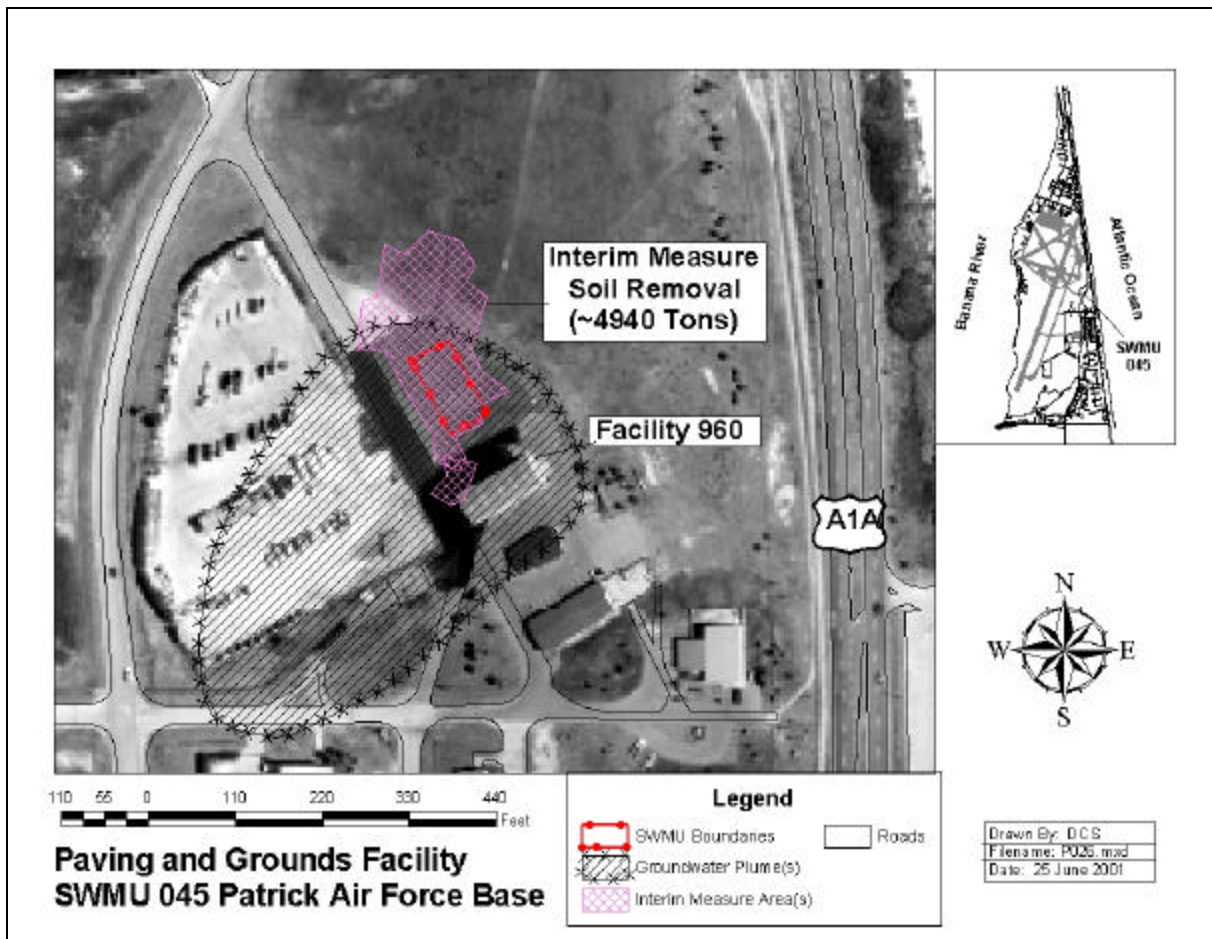
Long Term Monitoring Plan: Natural Attenuation (NA) is evaluated through LTM. Per the LTM Work Plan, monitoring well locations will be sampled on a semi-annual basis. The scope and magnitude of the LTM program are reviewed and adjusted annually, based on the most recent data trends.

Pertinent Document Reference:

RCRA Facility Investigation/Interim Measure/Corrective Measures Report, Facility 958, SWMU No. 45, CH2M Hill, September 2000.

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Facility 958 – Site Map



Please contact the 45 SW Installation Restoration Program Office to obtain additional information, including: the 45 SW Land Use Controls Operation Plan; the PAFB HSWA Permit; a complete record of corrective actions at Facility 958; or other related documents, guidance, and regulations. The IRP office can be reached by phone at (321) 853-0965. Information can also be obtained via the IRP website at http://www.mission-support.org/45SW_IRP_EA